CLAIMS:

1. The use of IL-2 common gamma chain (cγc) or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof for modulating the interaction between cγc and NIK.
2. The use according to claim 1, wherein the fragment of cγc comprises 41MDD (SEQ ID NO:2).
3. The use according to claim 1, wherein the fragment of NIK cγc comprises 44MPD(SEQ ID NO:17).
4. The use according to calim 1, wherein the fragment comprises the intracellular domain of cγc (ICDcγc) (SEQ ID NO:1).
5. The use according to calim 1, wherein the cγc fragment comprises residues 1-357 (SEQ ID NO:20) of cγc.
6. The use according to calim 1, wherein the cγc fragment comprises residues 1-341(SEQ ID NO:21) of cγc.
7. The use of a DNA encoding cγc or a mutein, variant, fusion protein, circularly permutated derivative or fragment thereof for modulating the interaction between IL-2 common gamma chain (cγc) and NIK.
8. The use of an antibody specific to cγc or to a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof for modulating the interaction between IL-2 common gamma chain (cγc) and NIK.
9. The use of a small molecule capable of modulating the interaction between IL-2 common gamma chain (cγc) and NIK for modulating NIK activity, wherein said molecule is obtainable by screening products of combinatory chemistry in a luciferase system.
10. The use of a DNA encoding the antisense of cγc or a mutein, variant, fusion protein, circularly permutated derivative or fragment thereof for modulating the interaction between IL-2 common gamma chain (cγc) and NIK.

11. The use of cyc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, in the manufacture of a medicament for treatment of a disease, wherein NIK activity is involved in the pathogenesis of the disease.

12. The use according to claim 11, wherein the fragment of cyc comprises 41MDD(SEQ ID NO:2).

13. The use according to claim 11, wherein the fragment of cyc comprises 44MPD(SEQ ID NO:17).

14. The use according to claim 11, wherein the fragment of cyc comprises ICDcyc (SEQ ID NO:1).

15. The use according to claim 11, wherein the fragment of cyc comprises residues 1-357 (SEQ ID NO:20) of cyc.

16. The use according to claim 11, wherein the fragment of cyc comprises residues 1-341(SEQ ID NO:21) of cyc.

17. The use of cyc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, in the manufacture of a medicament for the treatment of a disease, wherein NF-κB is involved in the pathogenesis of the disease.

18. The use of an antibody capable of recognizing and binding cyc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, in the manufacture of a medicament for the treatment of a disease, wherein NIK is involved in the pathogenesis of the disease.

19. The use of a DNA encoding cyc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, in the manufacture of a medicament for the treatment of a disease, wherein NIK is involved in the pathogenesis of the disease.

20. The use of a DNA encoding the antisense of cyc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, in the manufacture of a medicament for the treatment of a disease, wherein NIK is involved in the pathogenesis of the disease.

21. The use of a small molecule capable of modulating NIK-cγc interaction in the manufacture of a medicament for the treatment of a disease, wherein NIK is involved in the pathogenesis of the disease.

22. A method for the treatment of a disease involving the activity of NIK in the pathogenesis of said disease comprising administration of a therapeutically effective amount of cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, in a subject in need.

23. The method according to claim 22, wherein the fragment of cγc comprises 41MDD(SEQ ID NO:2).

24. The method according to claim 22, wherein the fragment of cγc comprises 44MPD(SEQ ID NO:17).

25. The method according to claim 22, wherein the fragment of cγc comprises ICDcγc(SEQ ID NO:1).

26. The method according to claim 22, wherein the fragment of cγc comprises residues 1-357(SEQ ID NO:20) of cγc.

27. The method according to claim 22, wherein the fragment of cγc comprises residues 1-341(SEQ ID NO:21) of cγc.

28. A method for the treatment of a disease involving the activity of NIK in the pathogenesis of said disease comprising the administration of a therapeutically effective amount of an antibody capable of recognizing and binding cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, to a subject in need.

29. A method for the treatment of a disease involving the activity of NIK in the pathogenesis of said disease comprising administration of a therapeutically effective amount of DNA encoding cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, to a subject in need.

30. A method for the treatment of a disease involving the activity of NIK in the pathogenesis of said disease comprising administration therapeutically effective amount of DNA encoding the antisense of cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, to a subject in need.

31. A method for the treatment of a disease involving the activity of NIK in the pathogenesis of said disease, comprising administrating of a therapeutically effective amount of a small molecule capable of modulating NIK-cγc interaction to a subject in need.

32. A pharmaceutical composition comprising cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof for modulating the interaction between IL-2 common gamma chain (cγc) and NIK.

33. A pharmaceutical composition comprising a DNA encoding cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof for modulating the interaction between IL-2 common gamma chain (cγc) and NIK.

34. A pharmaceutical composition comprising an antibody specific to cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof for modulating the interaction between IL-2 common gamma chain (cγc) and NIK.

35. A pharmaceutical composition comprising a DNA encoding the antisense of cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof for modulating the interaction between IL-2 common gamma chain (cγc) and NIK.

36. A pharmaceutical composition comprising cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, for the treatment of a disease, wherein NIK activity is involved in the pathogenesis of the disease.

37. A pharmaceutical composition comprising cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, for the treatment of a disease, wherein NF-κB activity is involved in the pathogenesis of the disease.

38. A pharmaceutical composition comprising an antibody capable of recognizing and binding cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, for the treatment of a disease, wherein NIK activity is involved in the pathogenesis of the disease.

39. A pharmaceutical composition comprising a DNA encoding cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, for the treatment of a disease, wherein NIK activity is involved in the pathogenesis of the disease.

40. A pharmaceutical composition comprising a DNA encoding the antisense of cγc or a mutein, variant, fusion protein, circularly permutated derivative or fragment thereof, for the treatment of a disease, wherein NIK activity is involved in the pathogenesis of the disease.

41. A pharmaceutical composition comprising a small molecule capable of modulating NIK-cγc interaction for the treatment of a disease, wherein NIK activity is involved in the pathogenesis of the disease.

42. A method for the treatment of a disease involving the interaction between NIK and cγc in the pathogenesis of said disease comprising administration of a therapeutically effective amount of cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, in a subject in need.

43. A polypeptide fragment of cγc, comprising the NIK binding domain, or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof.

44. A polypeptide fragment of cγc according to claim 43, comprising 41MDD(SEQ ID NO:2).

45. A polypeptide fragment of cγc according to claim 43, comprising 44MPD(SEQ ID NO:17).

46. A polypeptide fragment of cγc according to claim 43, comprising ICDcγc(SEQ ID NO:1).

47. A polypeptide fragment of cγc according to claim 43, comprising residues 1-357(SEQ ID NO:20) of cγc.

48. A polypeptide fragment of cγc according to claim 43, comprising residues 1-341(SEQ ID NO:21) of cγc.

49. A DNA encoding the polypeptide fragment of cγc according to anyone of claims 43 to 48.

50. A vector comprising the DNA according to claim 49.

51. A cell comprising a vector according to claim 50.

52. A method for the production of a cγc polypeptide fragment according to anyone of claims 43 to 48, comprising culturing a cell according to claim 51 and collecting the polypeptide produced.

53. An antibody, polyclonal or monoclonal, chimeric antibody, fully humanized antibody, anti-anti-Id antibody, intrabody or fragment thereof which specifically recognises and binds a polypeptide fragment of cγc according to anyone of claims 43 to 48.

54. A small molecule able to inhibit NIK-cγc interaction obtainable by screening of molecules prepared by combinatory chemistry in a luciferase system.

55. A pharmaceutical composition comprising a polypeptide fragment of NIK according to anyone of claims 43 to 48.

56. A pharmaceutical composition comprising an antibody according to claim 53.

57. A pharmaceutical composition comprising a small molecule according to claim 54.

58. A pharmaceutical composition comprising a vector according to claim 50.

59. The pharmaceutical composition according to anyone of claims 55 to 58, for modulating NIK activity.

60. The pharmaceutical composition according to anyone of claims 55 to 58, for the treatment of a disease wherein NIK and cγc interaction is involved in the pathogenesis of said disease.

61. The use of a fragment of cγc, comprising the NIK binding domain or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, in the manufacture of a medicament for the treatment and/or prevention of a disease resulting from excessive immune responses.

62. The use according to claim 61 wherein the fragment of cγc comprises 41MDD(SEQ ID NO:2).

63. The use according to claim 61 wherein the fragment of cγc comprises 44MPD(SEQ ID NO:17).

64. The use according to claim 61 wherein the fragment of cγc comprises ICDcγc(SEQ ID NO:1).

65. The use according to claim 61 wherein the fragment of cγc comprises residues 1-357(SEQ ID NO:20) of cγc.

66. The use according to claim 61 wherein the fragment of cγc comprises residues 1-341(SEQ ID NO:21) of cγc.

67. The use according to anyone of claims 61 to 66 , for the treatment of rheumatoid arthritis, osteoarthritis, inflammatory bowel disease, asthma, cardiac infarct, Alzheimer's disease, or atherosclerosis.

68. The use of a fragment of cγc, comprising the NIK binding domain, or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof, in the manufacture of a medicament for the treatment and/or prevention of autoimmune diseases.

69. The use according to claim 68, comprising 41MDD (SEQ ID NO:2).

70. The use according to claim 68, comprising 44MPD(SEQ ID NO:17).

71. The use according to claim 68, comprising ICDcγc(SEQ ID NO:1).

72. The use according to claim 68, comprising cγc residues 1-357(SEQ ID NO:20) of cγc.

73. The use according to claim 68, comprising cγc residues 1-341(SEQ ID NO:21) of cγc.

74. The use according to anyone of claims 68 to 73, wherein the disease is selected from immune thyroiditis, rheumatoid arthritis and other arthropaties, autoimmune haemolytic anemia and inflammatory bowel disease.

75. A method for the treatment and/or prevention of a disease in which activation of NF-κB is involved in the pathogenesis of the disease, comprising administering a therapeutically effective amount of cγc, or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof to a subject in need.

76. A method according to claim 75 wherein the cγc fragment comprises 41MDD(SEQ ID NO:2).

77. A method according to claim 75 wherein the cγc fragment comprises 44MPD(SEQ ID NO:17).

78. A method according to claim 75 wherein the cγc fragment comprises residues 1-357(SEQ ID NO:20) of cγc.

79. A method according to claim 75 wherein the cγc fragment comprises residues 1-341(SEQ ID NO:21) of cγc.

80. A method of treatment and/or prevention of a disease in which NIK and cγc interaction is involved in the pathogenesis of said disease, comprising administering to a host in need thereof a therapeutically effective amount of a polypeptide comprising a fragment of cγc, comprising the NIK binding domain, or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof.

81. A method according to claim 80, comprising 41MDD(SEQ ID NO:2).

82. A method according to claim 80, comprising 44MPD(SEQ ID NO:17).

83. A method according to claim 80, comprising ICDcγc(SEQ ID NO:1).

84. A method according to claim 80 wherein the cγc fragment comprises residues 1-357(SEQ ID NO:20) of cγc.

85. A method according to claim 80 wherein the cγc fragment comprises residues 1-341(SEQ ID NO:21) of cγc.

86. A method of treatment and/or prevention of a disease in which NF-κB activation is involved in the pathology of the disease, comprising administering to a host in need thereof an effective amount of a small molecule according to claim 54.

87. A method according to claim 86, for the treatment of cancer.

88. A method according to claim 86, for the treatment of rheumatoid arthritis, osteoarthritis, inflammatory bowel disease, asthma, cardiac infarct, Alzheimer's disease, or atherosclerosis.

89. A method of treatment and/or prevention of a disease resulting from excessive immune responses, comprising administering to a host in need thereof a therapeutically effective amount of a polypeptide comprising a fragment of cγc, corresponding to the NIK binding domain, or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof.

90. A method according to claim 89, comprising 41MDD(SEQ ID NO:2).

91. A method according to claim 89, comprising 44MPD(SEQ ID NO:17).

92. A method according to claim 89, comprising ICDcγc(SEQ ID NO:1).

93. A method according to claim 89 wherein the cγc fragment comprises residues 1-357(SEQ ID NO:20) of cγc.

94. A method according to claim 89 wherein the cγc fragment comprises residues 1-341(SEQ ID NO:21) of cγc.

95. A method according anyone of claims 89 to 94, for the treatment of diseases selected from rheumatoid arthritis, osteoarthritis, inflammatory bowel disease, asthma, cardiac infarct, Alzheimer's disease, and atherosclerosis.

96. The use of cγc or a mutein, variant, fusion protein, functional derivative, circularly permutated derivative or fragment thereof for modulation of NF-κB activity.

97. The use according to claim 96, comprising 41MDD(SEQ ID NO:2).

98. The use according to claim 96, comprising 44MPD(SEQ ID NO:17).

99. The use according to claim 96, comprising ICDcγc(SEQ ID NO:1).

100. The use according to claim 96 wherein the cγc fragment comprises residues 1-357(SEQ ID NO:20) of cγc.

101. The use according to claim 96 wherein the cγc fragment comprises residues 1-341(SEQ ID NO:21) of cγc.

102. The use according to anyone of claims 96 to 101 for NF-κB activation.

103. The use according to anyone of claims 96 to 101 for NF-κB inhibition.

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